# FACT SHEET FOR NPDES
# PERMIT NO. WA-002088-5

# TOWN OF WINTHROP
# WASTEWATER TREATMENT PLANT

## SUMMARY

The Town of Winthrop is seeking renewal of its National Pollutant Discharge Elimination System (NPDES) Permit for its wastewater treatment facility. The facility serves a year around population of approximately 500 people. The Town of Winthrop is a resort community, whose economy is centered on serving the needs of outdoor sports enthusiasts and tourists during the summer and winter seasons. The Town also treats sanitary sewage from the nearby Sun Mountain Resort.

The Town operates a treatment facility consisting of a collection system, a two-cell aerated lagoon, a non-aerated polishing cell, a chlorine contact tank, and a dechlorination pond. Since the previous permit became effective in October 1990 significant modifications to the facility include: a pipeline constructed to convey wastewater from the Sun Mountain Resort; additional aeration installed in the treatment lagoon to increase BOD treatment capacity; a new chlorine contact chamber; and, a new outfall and diffuser. In addition, new electrical service and controls and influent and effluent flow meters were installed.

The Town has remained in substantial compliance with the effluent limitations and monitoring requirements of the previous permit. The effluent limitations for BOD, pH, fecal coliform contained in this permit are unchanged from the previous permit. The BOD percent removal requirement has been adjusted to reflect the treatment capacity of a waste stabilization lagoon located in an area that often experiences very cold winter weather. The TSS effluent limitations in this permit have been adjusted substantially and are performance-based. Effluent limitations for chlorine have also been modified to reflect revisions in the state's water quality standards.

This permit requires the Town to submit to the Department two I & I Evaluations, a Wasteload Assessment and an updated O & M Manual.

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## INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington (State) on the basis of Chapter 90.48 RCW which defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC) and water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit.

This permit is issued according to protocols that apply screening criteria to assess key environmental protection parameters. It is designed to apply to selected minor dischargers that, based on the available information, the Department believes have proved to pose a relatively low environmental impact potential to its receiving water environment. The permit contains the technology-based effluent limitations as given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (State). A preliminary assessment of the discharge's potential for exceedance of the water quality standards for chlorine and ammonia has been made. Where there is a lack of adequate data indicating the discharger's potential for exceedance of the water quality criteria, this permit does not include water quality-based numeric effluent limitations. Based on the Department's preliminary evaluation, the permit may include monitoring requirements and/or specified measures to control discharges of these toxic pollutants.

One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

This fact sheet has been reviewed by the Permittee and errors in fact have been corrected. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments (Appendix C) will become part of the file on the permit and parties submitting comments will receive a copy of the

Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix C--Response to Comments.

| GENERAL INFORMATION | |
|---|---|
| Applicant | Town of Winthrop |
| Facility Name and Address | Town of Winthrop Wastewater Treatment Plant<br>South of Riverside Ave. and Perry St.<br>Winthrop, Washington 98862 |
| Type of Treatment | Aerated Lagoon |
| Discharge Location | Waterbody name: Methow River<br><br>Latitude: 48° 28' 02" N<br>Longitude: 120° 10' 15" W |
| Water Body ID Number | WA-48-1040 |

## BACKGROUND INFORMATION

### DESCRIPTION OF THE FACILITY

1- Treatment Processes: Treatment consists of a two-cell aerated lagoon followed by a facultative lagoon cell. Wastewater in the first cell is mechanically aerated and most of the settleable material is removed. In addition, naturally occurring microorganisms convert a large portion of the dissolved organic materials into microbial mass, much of which then settles.

The second cell serves as a polishing lagoon for the additional removal of organic materials. This cell is not presently aerated; however, the town is considering adding aeration if it becomes necessary.

Wastewater is then chlorinated, mixed, held in a contact chamber, and dechlorinated in a pond equipped with a submerged mixer. A submerged mixer was installed to

prevent freezing of the contents of the pond, but the efficacy of the mixer to dechlorinate has been called into question. The Permittee may need to modify the design of the dechlorination system in light of the lower residual chlorine effluent limits in this permit. Effluent is then discharged through a diffuser in the middle 24 feet of the Methow River.

2- Treatment Plant Classification: The Winthrop wastewater treatment facility is classified as a Class I plant due to the component parts and complexity of the operation. The facility must be run by a Class I wastewater treatment plant operator certified by the State of Washington.

3- Industrial Users: According to the information provided by the Town, there are no major industrial contributors to the applicant's sewer collection system.

## DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Methow River which is designated as a Class A receiving water in the vicinity of the outfall. This segment of the river is identified on the 303(d) list as an impaired waterbody for inadequate instream flow. Characteristic uses include the following:

> Water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; and commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

## DISCHARGE OUTFALL AND DILUTION

Secondary treated and disinfected effluent is discharged from the facility via an outfall and diffuser into the Methow River.

### Acute Dilution Factor

A calculation of the acute dilution factor was made for this discharge based on the allowable percent flow of the receiving water using the following formula:

acute dilution factor = (Qeffluent + 2.5% Qstream)/(Qeffluent)

where, Qeffluent = effluent flow during critical condition, 0.157 MGD; and,
Qstream = receiving water flow, 96.3 MGD.

Based on this estimate, the acute dilution factor is 16.3.

**Chronic Dilution Factor**

A calculation of the chronic dilution factor was made for this discharge based on the allowable percent flow of the receiving water using the computer model RIVPLUM5.WK1.

Based on this estimate, the chronic dilution factor is 231.0.

## GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground; therefore, no ground water quality limitations are required in this permit.

## PERMIT STATUS

The previous permit for this facility was issued on September 27, 1990. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand ($BOD_5$), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, Flow and Chlorine.

An application for permit renewal was received by the Department in 1995 and accepted. The permit was administratively extended until this renewal permit could be issued.

A new application with updated information was received and accepted by the Department on September 14, 1998.

## WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in a prior NPDES application (received in 1995) and in discharge monitoring reports (DMRs). Data reported in the application were based on sampling results from August 1997 to July 1998. The effluent is characterized as follows:

| Parameter | annual average | lowest monthly average | highest monthly average |
|---|---|---|---|
| Flow (MGD) | 0.047 | 0.022 | 0.066 |
| $BOD_5$ (mg/L) | 24 | 10 | 45 |
| TSS (mg/L) | 27 | 8 | 64 |
| Fecal Coliform (colonies per 100 mL) | [a] | [a] | <2 |

| | | | |
|---|---|---|---|
| Total Residual Chlorine (mg/L) | 0.078 | 0.02 | 0.18 |
| Temperature, summer (degree Celsius) | 16 | 10 | 21 |
| Temperature, winter (degree Celsius) | 3 | 1 | 7 |
| pH range | | low pH = 7.06 | high pH = 7.97 |
| Dissolved oxygen | 8.54 | 1.3 | >15 |

a-An accurate annual average could not be determined because of the large number of fecal counts of less than one.

The Permittee was never required to characterize or routinely monitor for ammonia in its effluent; therefore, there are no data for this parameter.

## PROPOSED PERMIT LIMITATIONS AND CONDITIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC) or Sediment Quality Standards (Chapter 173-204 WAC). The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

### DESIGN CRITERIA

In accordance with WAC 173-220-130(1)(a), effluent limitations shall not be less stringent than those based upon the design criteria for the facility, which are contained in approved engineering plans, reports, or approved revisions. Also, in accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the Sun Mountain Resort/Town of Winthrop Wastewater Treatment Facilities Engineering Report, received by the Department on March 16, 1989, and prepared by Gray and Osborne, and are as follows:

| Parameter | Design Quantity |
|---|---|
| Maximum monthly average flow (MGD) | 0.3 |
| Maximum instantaneous flow (MGD) | 1.008 |
| BOD influent loading (lb./day) | 513 |
| TSS influent loading (lb./day) | 513 |
| Design population equivalent (# of people) | 2,400 |

## SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

A compliance inspection without sampling was conducted on June 6, 1997.

During the history of the previous permit, the Permittee has remained in substantial compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. The facility exceeded its BOD average monthly effluent limits eleven times between April 1995 and May 1998 during cold weather months. The treatment plant operator states that it is common practice for residents to leave their water faucets running to prevent their pipes from freezing. Dilute influent lowers the efficiency of the treatment process in the lagoon. Consequently, the facility does not always achieve the 85 percent BOD removal permit requirement.

The Department formally recognized the facility with an Outstanding Performance Award for Excellence during 1997.

## TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment (AKART) for municipal wastewater.

### Conventional Pollutants

The $BOD_5$, fecal coliform and pH numerical effluent limits remain unchanged from the previous permit. The $BOD_5$ limits in this permit are based on technology-based performance standards detailed in WAC 173-221-040(1). The fecal coliform and pH limits are taken from WAC 173-221-040(2) and (3), respectively. Alternate effluent limits for waste stabilization ponds, and the method to calculate these limits, are described in the Department's Permit Writer's Manual, Chapter V, pages V-11 through V-16.

The $BOD_5$ removal rate requirement was adjusted downward, from 85% to 79%, to better reflect the treatment capability of the Permittee's facility. The facility has often not attained 85% removal in cold weather months. Although the previous permit required a BOD removal rate of 85%, it is the best professional judgment of the permit writer that this requirement was not attainable on a sustainable basis and did not follow the spirit of the WAC, based on the reduced treatment capacity of waste stabilization ponds during cold weather. WAC 173-221-050 states:

> thirty-day average percent removals of BOD and TSS shall not be less than sixty-five percent of influent concentrations, [and] not any less stringent than "effluent concentrations consistently achievable through proper operation and maintenance" of the wastewater facility based on an analysis of the past performance, the design, and the design capacity of the wastewater facility.

The $BOD_5$ removal rate requirement in this permit was calculated by determining the fifth percentile of DMR data submitted to the Department for the period from April 1995 to May 1998.

The TSS limits in this permit are more stringent than those in the previous permit. The limits in the previous permit were based on WAC 173-221-050(2), which authorizes "alternative" effluent limits for waste stabilization ponds used in domestic wastewater treatment facilities. However, subsection c directs that limits not be "any less stringent than effluent concentrations consistently achievable through proper operation and maintenance of the wastewater facility based on analysis of past performance."

TSS effluent limits for this permit were determined using three years of DMR effluent monitoring data submitted to the Department, from April 1995 to May 1998. First, the mean of monthly average TSS effluent concentrations was calculated. Next, the standard deviation and $95^{th}$ percentile values were calculated. The results are presented in the table below:

| Statistic | Monthly Average |
|---|---|
| Mean | 26.07 mg/L |
| Standard Deviation | 17.06 mg/L |
| $95^{th}$ Percentile | 55.5 mg/L |

Thus, the monthly average effluent limit in this permit was determined to be 56 mg/L. The weekly average effluent limit was calculated by multiplying the monthly average, 56 mg/L, by 1.5, which results in a limit of 84 mg/L. Monthly and weekly mass loading limits were determined by multiplying the calculated average monthly concentration and the calculated average weekly concentration by the facility design flow of 0.3 MGD, respectively.

## SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a State regulation designed to protect the beneficial uses of the surface waters of the State.

In the absence of data indicating otherwise, the discharge is believed to have a relatively low adverse environmental impact potential and therefore, the permit does not have extensive effluent and receiving water data gathering and monitoring requirements. However, a preliminary evaluation of the discharge's potential for exceedance of the water quality standards for chlorine and ammonia were made. Based on this preliminary evaluation, described in the following section, the permit includes monitoring for chlorine.

## CONSIDERATION OF SURFACE WATER QUALITY-BASED CRITERIA

### Critical Conditions

Determination of the reasonable potential for exceedance of the surface water standards quality standards are made for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

### Mixing Zones

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving AKART and in accordance with other mixing zone requirements of WAC 173-201A-100.

### Preliminary Dilution Factor Estimation

When pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART, mixing zones may be authorized in accordance with Chapter 173-201A WAC.

Mathematical models and/or dye studies may be used to determine the dilution factors of effluent to receiving water that occur within the allowable mixing zones at the critical condition. The

dilution factors determined will then be compared with those based on the allowable river flow percents (WAC 173-201). RIVPLUM5 model may be used to determine the dilution factors at the boundaries of the allowable mixing zone. RIVPLUM5 is a two dimensional model based on the assumption that the discharge is a single point source and is completely and rapidly mixed vertically in the receiving river. Using the RIVPLUM5, the Department simulated a number of discharge scenarios. The predicted acute dilution factors were compared with those calculated based on the 2.5% stream flow. The RIVPLUM5 predicted higher dilution factor in most simulated instances where the stream depth is greater than 2 feet. However, although the estimation of the dilution factor based on the 2.5% of the stream flow may not always yield the lowest value, this permit is issued to a minor municipality where the potential for adverse environmental impacts is believed to be low.

**Chlorine Considerations**

Discharges from wastewater treatment plants that use chlorine for fecal coliform control are likely to have a reasonable potential for chlorine toxicity, unless, dechlorination or other chlorine control methods are practiced at the plant and there is adequate dilution of the effluent by the receiving water.

Based on the Department's preliminary assessment of the effluent mixing and dilution in the receiving water, the discharge from this facility has a reasonable potential to exceed the water quality standards for chlorine. The permit requires implementation of measures to ensure compliance with the chlorine water quality standards. Using the spreadsheet WQBP2.WK1, which is used to calculate water quality-based permit limits to meet acute and chronic aquatic life criteria, the following effluent limits for chlorine were calculated:

| Monthly Average | Daily Maximum |
|---|---|
| 0.12 mg/L | 0.31 mg/L |

The chlorine limit in the previous permit was 0.4 mg/L. Historical monitoring data for residual chlorine, covering the period from April 1995 to May 1998, are summarized in the table below:

| Statistic | Monthly Average | Daily Maximum |
|---|---|---|
| Mean | 0.08 mg/L | 0.13 mg/L |
| Standard Deviation | 0.05 mg/L | 0.08 mg/L |
| 95$^{th}$ Percentile | 0.15 mg/L | 0.26 mg/L |

The calculated monthly average limit in this permit falls between the mean and 95$^{th}$ percentile of historical data. The calculated daily maximum limit is slightly higher than the historical 95$^{th}$ percentile. Thus, the daily maximum limit calculated for this permit exceeds the 95$^{th}$ percentile standard of performance on which reissued permit limits are often based.

Characterization data submitted in the permit application, based on 52 data points, reveals a highest monthly average fecal coliform bacteria count of less than 2 colonies/100 mL. High residual chlorine levels and very low coliform counts suggest use in excess of that required for disinfection purposes. In the best professional judgment of the Department, a decrease in the application rate of chlorine will allow the facility to easily comply with the calculated limit, and result in a level of fecal coliform well below the state water quality criteria and protective of public health.

The Permittee's dechlorination pond is equipped with an Aerolator aerator which may not provide sufficient chlorine volatilization. The device is mounted on a float system, has a submerged propeller on a shaft, and works by mixing the pond water. This design was selected to prevent freezing of the pond contents during cold weather. An aerator design which sprays the effluent into the air, thereby increasing the amount of surface area of water exposed to the atmosphere, may better facilitate volatilization of chlorine.

In a discussion that took place during the writing of this permit, the treatment plant operator was confident the facility will be able to meet the new residual chlorine effluent limit by adjusting the application rate of chlorine.

The monthly average chlorine mass loading limit was calculated

0.12 mg/L X 0.3 MGD X 8.34 lbs/gal = 0.3 lbs/day

The daily maximum limit was calculated

0.31 mg/L X 0.88 MGD X 8.34 lbs/gal = 2.28 lbs/day

**Ammonia Considerations**

Based on the Department’s preliminary assessment of the effluent mixing and dilution in the receiving water, the discharge from this facility does not have a reasonable potential for exceedance of the ammonia criteria outside the allowable mixing zone in the receiving water.

**COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED SEPTEMBER 27, 1990**

| Parameter | Existing Permit Limits | | Proposed Permit Limits | |
|---|---|---|---|---|
| | Monthly Average | Weekly Average | Monthly Average | Weekly Average |
| | **Technology Based Limits** | | | |
| Flow | 0.28 MGD | 1.008 MGD | 0.30 MGD | 0.88 MGD |
| BOD | 30 mg/L<br>85% removal<br>70 lbs/day | 45 mg/L<br>105 lbs/day | 30 mg/L<br>79% removal<br>70 lbs/day | 45 mg/L<br>105 lbs/day |
| TSS | 70 mg/L<br>163 lbs/day | 110 mg/L<br>257 lbs/day | 56 mg/L<br>140 lbs/day | 84 mg/L<br>210 lbs/day |
| Fecal Coliform | 200/100 mL | 400/100 mL | 200/100 mL | 400/100 mL |
| pH | 6 to 9 standard units | | 6 to 9 standard units | |
| | **Water Quality Based Limits** | | | |
| | **Existing Permit Limits** | | **Proposed Permit Limits** | |
| | Monthly Average | Weekly Average | Monthly Average | Daily Maximum |
| Chlorine | 0.4 mg/L | | 0.12 mg/L<br>0.30 lbs/day | 0.31 mg/L<br>2.28 lbs/day |

## MONITORING AND REPORTING

Effluent monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring and testing schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of the Department's Permit Writer's Manual.

## OTHER PERMIT CONDITIONS

**PREVENTION OF FACILITY OVERLOADING**

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in Special Condition S4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Special Condition S4. restricts the amount of flow.

**OPERATION AND MAINTENANCE (O&M)**

This permit contains Special Condition S5.G. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

The facility's current O & M Manual on file with the Department dates from the early 1970's. This manual was written for the wastewater treatment facility in its original configuration and predates the modifications made to accommodate flows from the Sun Mountain Resort and other modifications made throughout the years. Therefore, this permit requires submittal to the Department of an updated O & M Manual on or before January 15, 2000.

**RESIDUAL SOLIDS HANDLING**

To prevent water quality problems the Permittee is required in permit Special Condition S6. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.
The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR Part 503 and Chapter 173-308 WAC. The disposal of other solid waste is regulated by the jurisdictional health department.

**GENERAL CONDITIONS**

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual NPDES permits issued by the Department.

## PERMIT ISSUANCE PROCEDURES

### PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

### RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for five (5) years.

### REVIEW BY THE PERMITTEE

A proposed permit was reviewed by the Permittee for verification of facts. Only factual items were corrected in the draft permit and fact sheet.

## APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on August 6, and August 13, 1998 in the Methow Valley News to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on November 26, 1998 in the Methow Valley News to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (509) 575-2821, or by writing to the address listed above.

This fact sheet and permit were written by Jim LaSpina.

## APPENDIX B--GLOSSARY

**Acute Toxicity**--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

**Ambient Water Quality**--The existing environmental condition of the water in a receiving water body.

**Ammonia**--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Average Monthly Discharge Limitation**--The average of the measured values obtained over a calendar month's time.

**Average Weekly Discharge Limitation --** The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Best Management Practices (BMPs)**--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**$BOD_5$**--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The $BOD_5$ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment.

Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

**Bypass**--The intentional diversion of waste streams from any portion of a treatment facility.

**Chlorine**--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

**Chronic Toxicity**--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

**Class 1 Inspection**--A walk-through inspection of a facility that includes a visual inspection and some examination of facility records. It may also include a review of the facility's record of environmental compliance.

**Class 2 Inspection**--A walk-through inspection of a facility that includes the elements of a Class 1 Inspection plus sampling and testing of wastewaters. It may also include a review of the facility's record of environmental compliance.

**Clean Water Act (CWA)**--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

**Combined Sewer Overflow (CSO)**--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

**Composite Sample**--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

**Construction Activity**--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

**Critical Condition**--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

**Daily Maximum Discharge Limitation**--The greatest allowable value for any calendar day.

**Dilution Factor**--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction.

**Engineering Report**--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Fecal Coliform Bacteria**--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

**Grab Sample**--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

**Industrial Wastewater**--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

**Infiltration and Inflow (I/I)**--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of rainfall-caused surface water drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

**Mixing Zone**--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

**National Pollutant Discharge Elimination System (NPDES)**--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

**pH**--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

**Potential Significant Industrial User**--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

**Significant Industrial User (SIU)--**

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs. **State**

**Waters**--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater**--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

**Technology-based Effluent Limit**--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

**Total Suspended Solids (TSS)**--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna.

Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**Upset**--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

**Water Quality-based Effluent Limit**--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

# APPENDIX C -- WASTEWATER TREATMENT FACILITY CLASSIFICATION WORKSHEET

Purveyor: Town of Winthrop
Address: PO Box 459
Winthrop, WA 98862

Facility Name: Town of Winthrop Wastewater Treatment Facility
Address: South of intersection of Main and Perry Streets
Winthrop, WA 98862

County: Okanogan Phone: (509) 996-2320 Ownership of Plant: [ X ] Public [ ] Private

| Facility --- Class | I | II | III | IV |
|---|---|---|---|---|
| Range of Points | 25 and less | 26-50 | 51-70 | 71 and greater |

| ITEM | POINTS | POINTS ASSIGNED |
|---|---|---|
| **Size** | | |
| Design Flow | 1 point per 5 mgd - maximum 20 points | 1 |
| Population Equivalent (PE) | 1 point per 5000 PE - maximum 20 points | 1 |
| **Pretreatment Units** | | |
| Manually cleaned screens | 1 | 0 |
| Mechanically cleaned screens | 2 | 0 |
| Grit removal | 3 | 0 |
| Pre-aeration | 1 | 0 |
| Communitor, barminutors, grinders, etc. | 1 | 0 |
| Plant pumping | 3 | 3 |
| Separate industrial waste pretreatment | 10 | 0 |
| **Primary Treatment Units** | | |
| Imhoff tank, spirogesters, clarigesters, etc. | 3 | 0 |
| Primary clarifiers | 5 | 0 |
| Primary clarifiers utilizing settling aid chemicals | 9 | 0 |
| **Secondary Treatment Units** | | |
| Trickling filter (without recirculation) | 5 | 0 |
| Trickling filter (with recirculation) or 2-stage RBC unit | 7 | 0 |
| 3-stage RBC unit | 9 | 0 |
| Activated sludge | | |
| Mechanical aeration | 8 | 0 |
| Diffused or dispersed air (or an SBR) | 10 | 0 |
| Oxidation ditch | 8 | 0 |
| Pure oxygen | 13 | 0 |
| Stabilization ponds | 5 | 0 |
| Stabilization ponds with aeration | 7 | 7 |
| Secondary clarifiers (or an SBR) | 5 | 0 |
| **Tertiary Treatment Units** | | |
| Polishing pond | 2 | 2 |
| Land disposal of effluent, or post-aeration | 5 | 0 |
| Chemical treatment for phosphorus removal | 5 | 0 |
| Activated carbon beds (with carbon regeneration) | 10 | 0 |
| Activated carbon beds (without carbon regeneration) | 8 | 0 |
| Sand or mixed-media filters | 4 | 0 |
| Other nutrient removal processes following secondary treatment | 10 | 0 |
| **Disinfection** | 4 | 4 |
| **Sludge Treatment** | | |
| Anaerobic digesters | 4 | 0 |
| If heated, add | 3 | 0 |
| If mechanically or gas mixed, add | 2 | 0 |
| Aerobic digesters | 6 | 0 |
| Drying beds or evaporation lagoons | 2 | 0 |
| Thickener clarifier, or polymer addition | 5 | 0 |
| Vacuum filter, belt press, or centrifuge | 7 | 0 |
| Land application, or supernatant lagoons | 5 | 0 |
| Incinerator | 10 | 0 |
| Utilizing digester gas for other than heating purposes | 3 | 0 |
| **TOTAL** | | 18 |
| **CLASS** | | I |

## APPENDIX D - RESPONSE TO COMMENTS

No comments were received.